

Expert Witness Report

Prepared By:

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Five Fathoms Consulting LLC
June 14th, 2024

Prepared For:

The State of Texas Defendants

Regarding:

No. 1:23-CV-00853-DAE

United States District Court
Western District of Texas - Austin Division

United States of America, Plaintiff,

v.

Greg Abbott, in his capacity as Governor of the State of Texas, and
the State of Texas, Defendants.



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1. Captain Ciarametaro's Qualifications

Cpt. Ciarametaro's career in the Maritime and Offshore Industries began in 2006, accumulating over 18 years of experience in the maritime industry and more than 10 years of expertise in incident, navigation, and accident investigations. Additionally, Cpt. Ciarametaro has dedicated 17 years to service in the Department of Homeland Security and holds a Bachelor's Degree in Criminal Justice and Homeland Security Studies. He has attained the following relevant professional certifications, licenses, positions, and degrees throughout his career:

- Bachelor of Science – Criminal Justice and Homeland Security Studies – Endicott College
- Associate Degree in Fire Science - North Shore Community College
- Chief Petty Officer - United States Coast Guard – Honorable Discharge
- United States Coast Guard (USCG) Licenses –Master 100 Gross Tons. Captain's License
- Massachusetts Certified Harbormaster / Port Director
- USCG Senior Enlisted Reserve Officer
- USCG Maritime Incident Investigation
- Maritime Law Enforcement Academy Graduate (Charleston, S.C.)
- USCG Search and Rescue Coordinator
- Maritime Radiation Detection Level II Operator
- CPR/First Aid Maritime First Responder
- Federal Emergency Management Agency (FEMA) Incident Command System 200/300/700/900 Disaster Preparedness and Execution Courses
- Maritime Consultant and Project Manager
- USCG Deck Watch Officer and Underway Officer of the Day
- USCG Navigation Rules of the Road-Certified
- USCG Tactical Coxswain Certified
- USCG Pursuit Coxswain Certified
- USCG Advanced Interdiction Coxswain Certified
- USCG Boarding Officer Certified

In addition, Cpt. Ciarametaro has completed training in the following areas:

- Occupational Safety and Health Administration (OSHA) 10 – Construction Safety and Health
- Ship Casualty and Onboard Training Instructor
- Marine Firefighting and Emergency Training
- FEMA Emergency Management
- Professional Association of Diving Instructors (PADI) Certified Diver
- Chief Petty Officers Academy Graduate (Senior Military Leadership Academy)

2. Assignment and Opinion Summary

Cpt. Ciarametaro of Five Fathoms Consulting LLC was retained in this matter by the State of Texas to provide opinions relating to the Rio Grande River and the approximately 1,000 feet of attached buoys it installed near Eagle Pass, TX.

Cpt. Ciarametaro developed his opinions after reviewing relevant documents, testimony, research, and a site visit to Eagle Pass, TX, on June 7, 2024. The findings are informed by relevant professional knowledge, education, training, and experience acquired over 18 years in the maritime and homeland security industries. The opinions expressed herein are solely those of the Cpt. Ciarametaro. Discovery related to this case is ongoing, and additional information, including deposition testimony, may become available after the issuance of this report. Cpt. Ciarametaro may supplement or amend this report should additional information become available and provided for review.

Summary of Expert Opinions:

1. The Rio Grande River between Mile Markers 275.5 and 610, and particularly in the Eagle Pass area, does not meet the criteria of a navigable waterway conducive to commercial navigation such that it can operate as a highway of commerce.

2. I found no evidence of commercial navigation traveling upstream and/or downstream on the Rio Grande River between River Miles 275.5 and 610, including in the Eagle Pass area. Commercial navigation in this reach cannot occur in the river's current condition due to the due to severe constraints on channel width and draft, access to shore facilities, including commercial and security facilities, and economic factors.

3. The Rio Grande River poses significant challenges to transporting commercial cargo on vessels or barges. Its unsuitability for such purposes stems from substantial obstacles, including the need for extensive dredging and the implementation of a complex system of locks to obtain the necessary depth to vessels or barges carrying commercial cargo in sufficient quantities to justify the commercial navigation. Addressing the nearly 600-foot elevation changes over the 335-mile stretch from Eagle Pass to Laredo, Texas, would require an impractical amount of resources and infrastructure investment.

4. The buoy barrier does not obstruct the navigation of small vessels, man-powered vessels, Class A or Class 1 vessels, or any other vessel that can feasibly traverse up and down the Rio Grande River. Unlike traditional physical barriers or obstructions that might obstruct water flow and impede small vessel passage, the buoys have been strategically placed to allow unobstructed navigation for small vessels, like john boats, and human-propelled craft such as kayaks or canoes.

5. The use of temporary buoys to deter the illegal bank-to-bank passage of persons, guns, drugs, and goods is consistent with existing border security and Homeland Security missions and policies.

3. Background

A. Introduction

Texas's border with Mexico is in crisis because of human trafficking, drug smuggling, and terrorist infiltration. U.S. Customs and Border Protection ("CBP") alien encounters on the border have ballooned from about 458,000 in fiscal year 2020, to 1.7 million in fiscal year 2021, just shy of 2.4 million in fiscal year 2022, and nearly 2.5 million in fiscal year 2023, with more than 1.16 million so far in fiscal year 2024. *See, e.g.*, Southwest Land Border Encounters, U.S. Customs & Border Patrol (accessed June 13, 2024), <http://tinyurl.com/bdebv2t4>. This number does not account for illegal migrants who evade detection.

In 2021, Texas instituted Operation Lone Star, a program that has led to more than 513,100 illegal immigrant apprehensions, 43,700 criminal arrests, 38,400 felony charges, and the seizure of over 488 million lethal doses of fentanyl—enough to kill every man, woman, and child in both the United States and Mexico. Press Release, Office of Tex. Gov. (June 7, 2024), <https://tinyurl.com/2nj9xjut>.



Figure 1. Migrants link arms as they cross the Rio Grande in Piedras Negras, Mexico. Laris Karklis, *et al.*, *Mapping the Texas governor's effort to control the border at Eagle Pass*, Wash. Post (Feb. 28, 2024), <https://tinyurl.com/sn6vd4pc>.

In July of 2023, as part of Operation Lone Star, Texas placed around 1,000 feet of interconnected buoys in the Rio Grande River approximately 2 miles south downstream of Eagle Pass, Texas. The buoys assist local, state, and federal law enforcement with securing the border by preventing illegal bank-to-bank crossings between ports of entries. Press Release, *Operation Lone Star Boosts Border Response With New Marine Barriers*, Office of the Texas Governor (July 14, 2023), <https://tinyurl.com/yu5x9awh>. This in turn reduces the number of drownings by people attempting to illegally ford the Rio Grande River and the number of illegal guns, drugs, trafficked persons, and goods, entering the State of Texas.

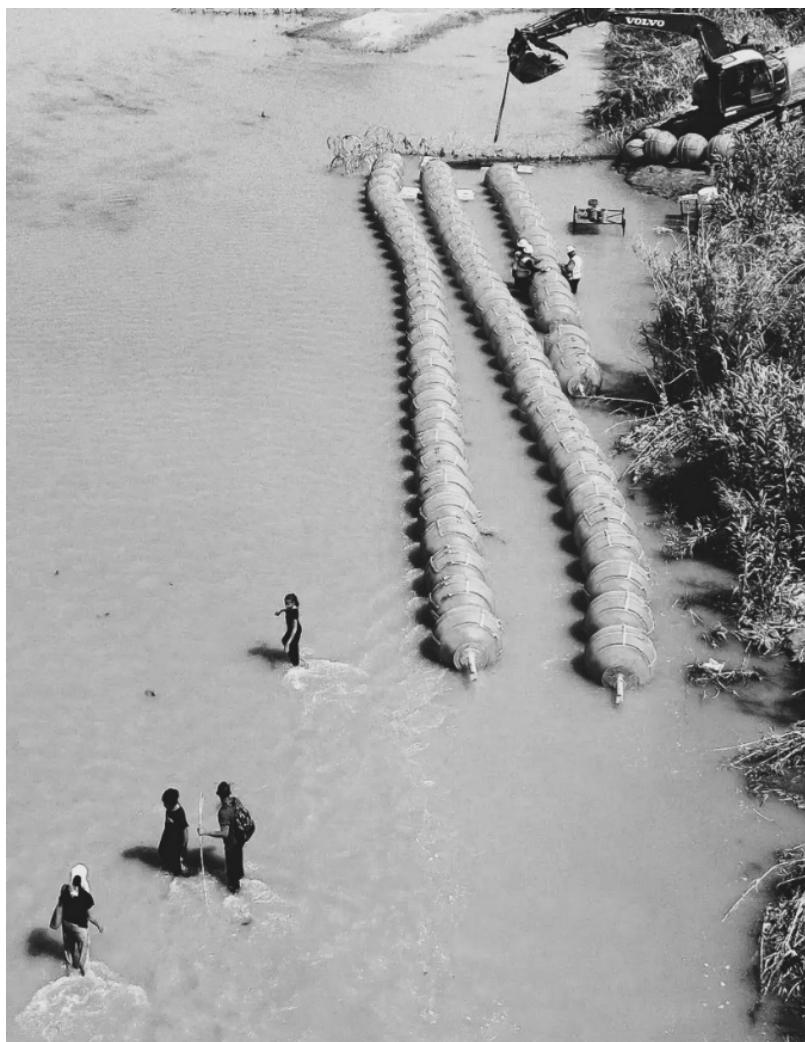


Figure 2. Illegal migrants crossing the Rio Grande River pause to watch the buoys being installed. Benjamin Wermund, *What we know about the company supplying Gov. Abbott's buoys in the Rio Grande*, Houston Chronicle (July 21, 2023), <https://tinyurl.com/5ydkz2ts>.

Eagle Pass was selected because of the number illegal migrants crossing. On September 19, 2023, Eagle Pass Mayor Rolando Salinas, Jr. declared a Local State of Disaster Emergency due the number of illegal migrants overwhelming the city. Sarah Fortinsky, *Texas city declares emergency over migrant crossings*, The Hill (Sept. 21, 2023), <https://tinyurl.com/35uhrz62>.

On July 24, 2023, the USA filed the instant suit against Texas, claiming that it failed to obtain a permit from the U.S. Army Corp of Engineers (“USACE”) prior to installing the buoys in violation of the Rivers and Harbors Appropriations Act of 1899 (the “RHA”). The USA seeks a permanent injunction ordering Texas to remove the buoys and preventing them from placing buoys anywhere along a 335-mile stretch of the Rio Grande River between River Miles 275.5 to 610, roughly encompassing the segments of the river between the Amistad Reservoir to just below the Falcon Dams.

Texas contend that the Rio Grande River is not a navigable water, and even if it is, they are still did not require a permit to install the buoys because they are not an “boom” or “other structure.” ECF 120. Texas further asserted their right to defend their territory and people from invasion pursuant to U.S. Const. art I, § 10, cl.3. *Id.*

The RHA generally applies to “navigable” waters of the U.S. that “are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.” 33 C.F.R. § 329.4. The RHA prohibits “[t]he creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States,” 33 U.S.C. §403. An obstruction to waterborne traffic means an object must “adversely affect” navigation such that it “tends to destroy the navigable capacity of one of the navigable waters of the United States.” *United States v. Republic Steel Corp.*, 362 U.S. 482, 487-88 (1960). An object that “may only deter movements in commerce” is not enough to constitute an

obstruction; it must “adversely affect” navigation. *Id.* Because this requires proof that the object “substantially diminishes the navigability of that stream within the limits of present navigability,” it “always” presents a question “of fact” *United States v. Rio Grande Dam & Irrigation Co.*, 174 U.S. 690, 709-10 (1899). A permit from the USACE is required to build a “wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures” in navigable waters. 33 U.S.C. § 403.

Navigable waters are those that, in their natural condition, can permit “customary modes of trade and travel on water” such that it constitutes “a highway of commerce” for “through navigation” along the watercourse with only practically “reasonable improvements” *United States v. Appalachian Power Co.*, 311 U.S. 377, 407, 411, 413-17 (1940); *The Daniel Ball*, 77 U.S. 557, 560 (1870) (“navigable” refers to “every stream or body of water, susceptible of being made, in its natural condition, a highway for commerce”). Navigable waters do not include bodies of water that host only sporadic or exceptional commercial navigation, *Miami Valley Conservancy Dist. v. Alexander*, 692 F.2d 447, 449-50 (6th Cir. 1982), or that can be easily forded on foot. *United States v. Oregon*, 295 U.S. 1, 20-21 (1935). Recreational fishing is neither commerce nor navigation. *Parm v. Shumate*, 513 F.3d 135, 141 (5th Cir. 2007). Bank to bank or ferry traffic, even when sustained on a large scale, does not qualify as “commercial navigation” for purposes of determining “navigable waters” under the RHA. *United States v. Crow, Pope & Land Enters., Inc.*, 340 F. Supp. 25, 34-35 (N.D. Ga. 1972); *Appalachian Power Co.*, 311 U.S. at 415-17. The USA is not contending in this suit that illegal bank-to-bank navigation occurring outside of ports-of-entry constitutes commercial activity.

B. The Rio Grande River

“The Rio Grande is not grand. It was, but it’s not anymore.” Kerry Halladay, *Getting to Know the Rio Grande*, Texas Water Resources Institute, Texas A&M University (accessed June 13, 2024) (quoting Rosario Sanchez, Ph.D.), <https://tinyurl.com/4xyn6zrc>.

The Rio Grande River (called the Rio Bravo in Mexico) runs approximately 1,900 miles from its headwaters in the San Juan Mountains of Colorado in the southern Rockies to where it meets the sea in the Gulf of Mexico. It is considered the fifth longest river in North America, and the twentieth longest river in the world. *Id.*

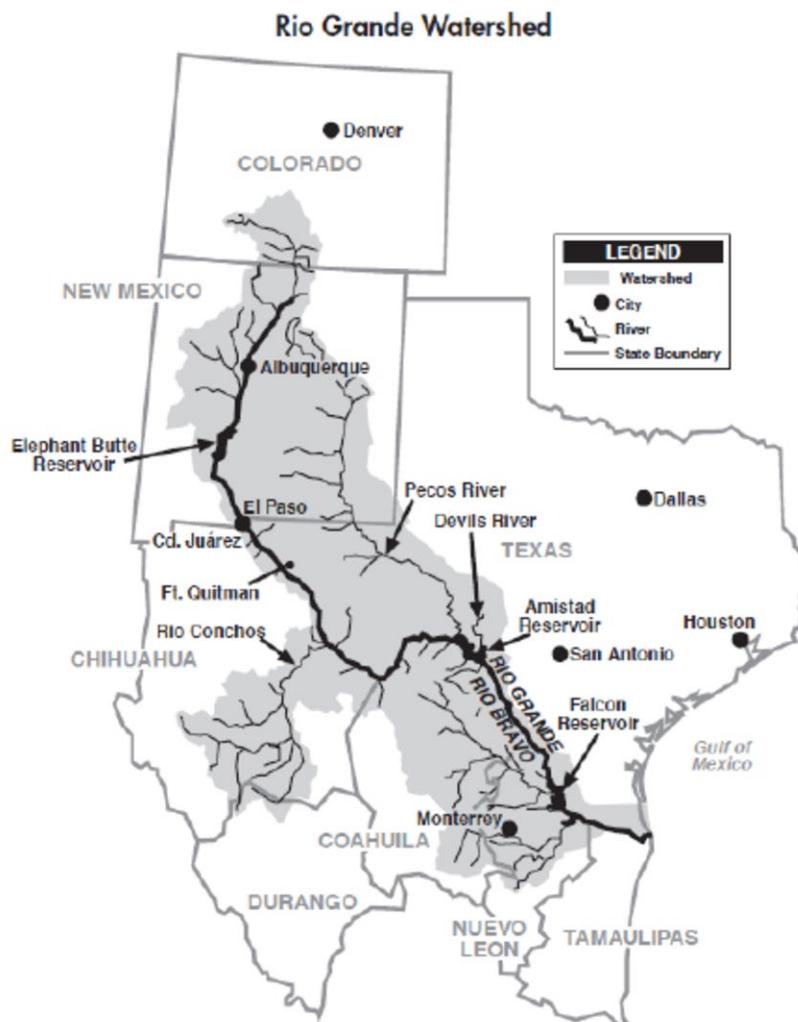


Figure 3. The Rio Grande/Bravo River System. Luzma Nava & Samuel Sandoval-Solis, *A lock-in Transboundary Water Management Regime: the case of the Rio Grande/Bravo Basin*, World Water Congress XV (May 2015) (Poster), <https://tinyurl.com/mt6muhr>.

While the name of the Rio Grande River means “large,” the reality it is less impressive. It “dwindles to nearly nothing at Presidio [Mile Mark 957.26], and only water from the Río Conchos [Mile Marker 961.36], coming out of Mexico, sustains its journey to the Gulf.” Leon Metz, *Rio Grande*, Texas State Historical Association (June 13, 2020), <https://tinyurl.com/yhrr545e>. The Rio Grande River is taxed by the lack of contributary rainfall and high evaporation rates. Large-scale use of the Rio Grande River for agricultural irrigation and municipal needs draws heavily from the available water supply.

In 2001, for the first time in recorded history, the Rio Grande River was too weak to flow into the Gulf of Mexico. Kris Axtman, *Rio Grande-now a river to nowhere*, Christian Science Monitor (May 21, 2001), <https://tinyurl.com/3b6eb9he>. Similar conditions exist today due to a years-long drought and Mexico refusing to release water from tributary waters into the Rio Grande River in violation of its treaty obligations. Texas municipalities, farmers, and ranchers have been devastated by the lack of water in the Rio Grande River. Berenice Garcia, *South Texas farmers are in peril as the Rio Grande Valley runs dry—again*, Texas Tribune (Apr. 18, 2024), <https://tinyurl.com/muz94j2>. “Earlier this year, the state’s last sugar mill closed due to a lack of water — effectively ending the decades-old industry.” *Id.*

A recent study found that the lack of available water for irrigation from the Rio Grande River will result in an estimated \$495.8 million direct revenue loss for the Lower Rio Grande Valley in 2024. Luis A. Ribera, *et al.*, *Estimated Economic Impacts of Irrigation Water Shortages on Lower Rio Grande Valley Agriculture*, Texas A&M University AgriLife (Dec. 22, 2023), <https://tinyurl.com/mr48ex6h>. Texas counties impacted by the lack of water in the Rio Grande River have declared states of emergency. Pablo Del La Rosa, *Hidalgo, Cameron counties issue disaster declarations as drought along border intensifies*, Texas Public Radio (Apr. 17,

2024), <https://tinyurl.com/cxrhk4kf>. The Texas Water Development Board data tracker shows that the Amistad Reservoir is currently 25% full and the Falcon Reservoir is 9.7% full. Texas Reservoirs, Texas Water Development Board (accessed June 13, 2024), <https://tinyurl.com/mvec5h63>. Locals describe the Falcon Reservoir as “a small puddle” and “a near-dry lake bed.” Sandra Sanchez, *Drought, lack of water from Mexico shrinking Rio Grande in Zapata, Texas, Border Report* (May 24, 2024), <https://tinyurl.com/4ppz3wv5>.

In 2014, a group of journalists with the Texas Tribune embarked on the *Disappearing Rio Grande Expedition* wherein they attempted to travel the entire length of the Rio Grande River by canoe. Days 169-200, Colin McDonald, *Disappearing Rio Grande*, Texas Tribune (Feb. 11, 2015) (Days 169-200), <https://tinyurl.com/2dpxzfav>. The Expedition saw no commercial navigation taking place between River Miles 275.5 and 610. It instead found that “the Rio Grande between Del Rio and Laredo is too shallow for a boat with a propellor or a jet engine....” *Id.* at Day 174. Indeed, they found “more rocks than water” and water so shallow that “there was not enough water to float the canoe with anyone in it.” *Id.* at Day 172.



Figure 4. Expedition member dragging a canoe down the Rio Grande River in an ankle-deep water. *Id.*

Cpt. Ciarametaro found similar conditions from his review of a video recording between Mile Markers 275.5 and 610 and during a site visit on June 7, 2024, to the area near Eagle Pass, TX.

Due to the nature of the Rio Grande River, controlling dams, fixed height bridges, portage areas, controlling depths, channel widths, and overall lack of navigability, there are only a few types of vessels that could be used to traverse *some* segments of Rio Grande River, namely,

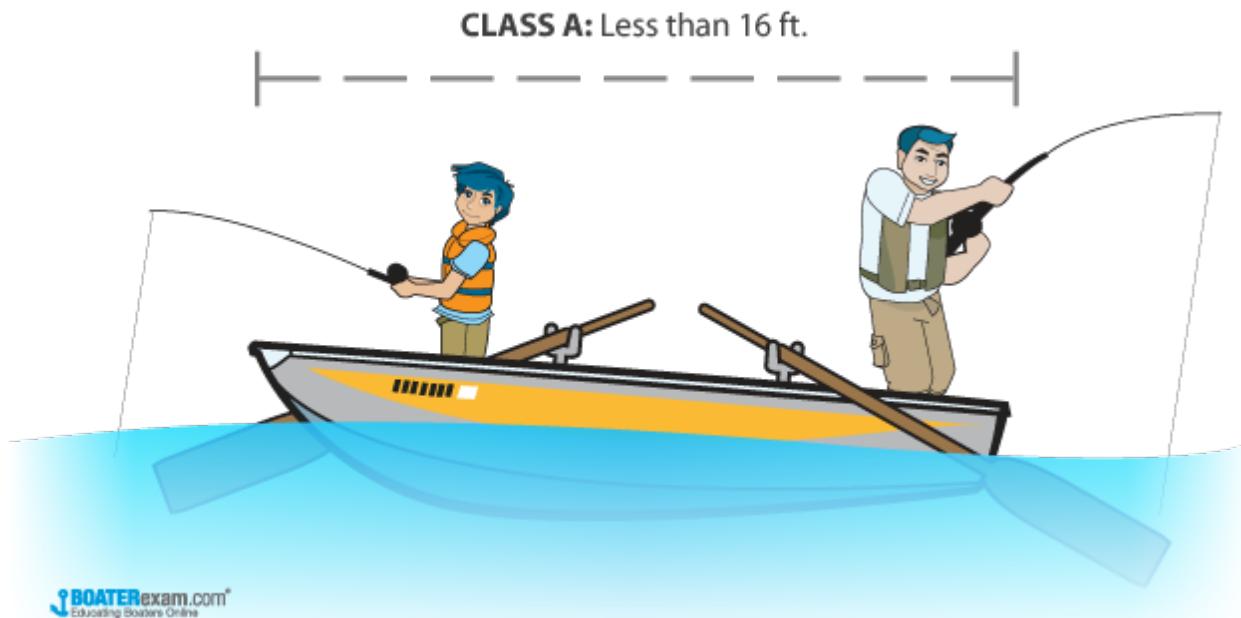


Figure 5. Class A Vessels less than 16 ft. Boat Size Classifications & Requirements, BoaterExam.com (accessed June 14, 2024) (approved Texas Parks & Wildlife Course), <https://tinyurl.com/ysnjpcnk>.

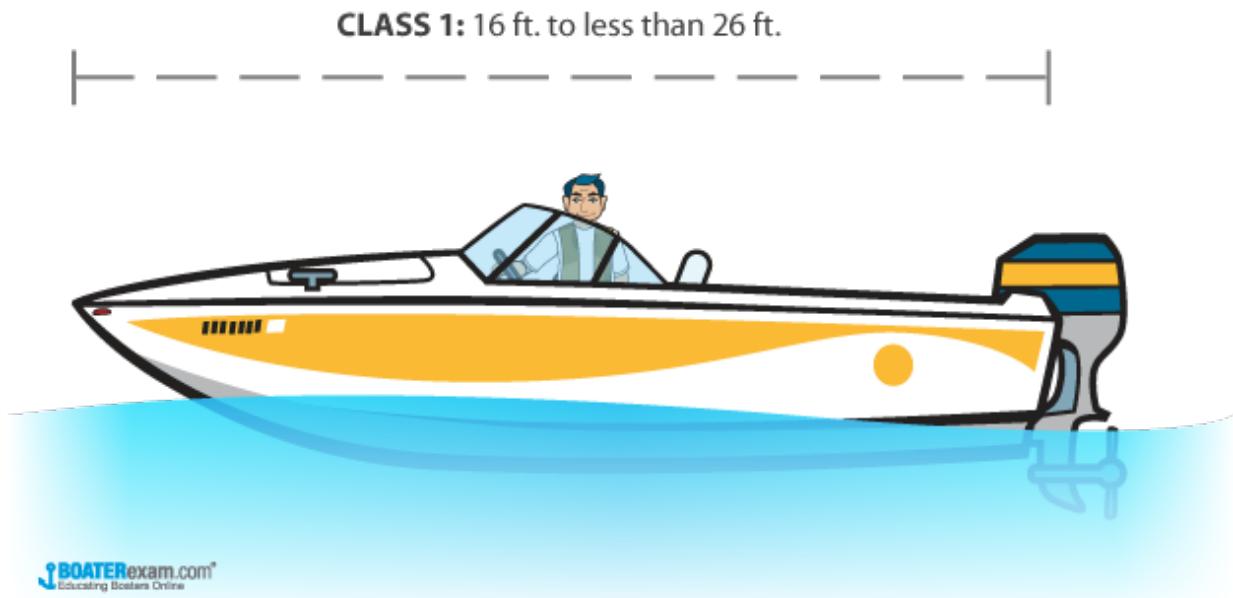


Figure 6. Class 1 Vessels 16-26 ft. *Id.*

Class A and Class 1 vessels are traditionally associated with recreational use, not commercial navigation transporting cargo. Larger vessels or barges capable of carrying commercial cargo are inviable on the Rio Grande River due to regulatory specifications, water diversion for agriculture, and the natural and manmade physical characteristics of the river and its course. The river itself currently has numerous manmade dams along its course. Significant amounts of the dammed waters are diverted along the river's path for agricultural and municipal uses. The flows in the river decrease significantly due to this demand on its resources in southwest Texas in particular, along with the limited influx of water from tributary waterways. "In many of the stretches of the river from the New Mexico-Colorado border to below Brownsville, Texas, there has been no surface flow at various times." Robert Schmidt & Donald Brand, Rio Grande, Encyclopedia Britannica (Jun. 11, 2024), <https://tinyurl.com/jftrkffu>.

Cpt. Ciarametaro observed *numerous* locations that were impossible to Class A and Class 1 vessels, small vessels, and any vessel or barge carrying commercial cargo, including but not limited to the following images and their corresponding time stamps:



Figure 7. Image showing impassable water conditions.



Figure 8. Image showing impassable water conditions.



Figure 9. Image showing impassable water conditions.



Figure 10. Image showing impassable water conditions.



Figure 11. Image showing impassable water conditions.



Figure 12. Image showing impassable water conditions.

C. The Buoys

Buoys are defined as “a floating object moored to the bottom, to mark a channel or to point out the position of something beneath the waters, as an anchor, shoal, rock, etc.” Webster’s New International Dictionary 292 (1930). They are commonly used for navigation, marking hazards, delineating boundaries, supporting equipment, or forming barriers. Buoys are used variously as individual entities and components of larger structures comprised of several buoys, such as the barrier addressed in this report.



Figures 13 & 14. Pictures of the buoys.

The buoys in the Rio Grande River are a strategic barrier consisting of a series of connected, floating buoys placed along the river's eastern course along the Texas border that is intended to deter border crossings into the state and warning mariners of the concrete moorings to which they are attached that may be underneath the water, while still allowing unimpeded

navigation by viable watercraft. They are strategically positioned to address security concerns without significantly disrupting the flow of water or obstructing legitimate and ordinary maritime and small vessel activities along the border. During the Cpt. Ciarametaro's site-visit it was observed that water levels at the area where the buoys were installed were so low that some of them were aground. This further supports the conclusion that these buoys do not impede vessels traversing the river.



Figure 15. Pictures of the buoys taken by Cpt. Ciarametaro during site visit.



Figures 16 & 17. Pictures of the buoys taken by Cpt. Ciarametaro during site visit



Figures 18. Pictures of the buoys taken by Cpt. Ciarametaro during site visit

4. Expert Opinions

Opinion #1

The Rio Grande River, between Mile Markers 275.5 and 610, and specifically in the Eagle Pass region, does not meet the criteria of a navigable waterway conducive to commercial activities, and many factors render it unsuitable for commercial vessel navigation.

Cpt. Ciarametaro reviewed the USA expert reports and attended the deposition of Cpt. Timmel, and is of the opinion that the Rio Grande River lacks viability for commercial navigation on any scale.

The Rio Grande River contains numerous natural obstructions that hinder navigability. The boats identified by Mr. Cortez, Mr. MacAllister, and Cpt. Timmel in their reports and testimony cannot traverse the entire reach of the Rio Grande River between Mile Markers 275.5 to 610. The primary reasons for this are the river's shallow water depths, significant shoaling, the presence of dams and weirs, fixed height bridges, and areas with little to no water. These natural and man-made obstacles create significant barriers that impede continuous commercial navigation, making it impossible for boats to traverse the entire length of the Rio Grande River. These obstacles are many and varied, including but not limited to logs, trees, depths, river widths, and debris (such as rocks, sand bars, and silt). The same applies with even greater force to vessels carrying commercial cargo. In sum, the Rio Grande River is not navigable by vessel carrying commercial cargo, as a highway of commerce, because:

1. **Shallow Waters:** The Rio Grande River often has shallow depths, particularly in specific stretches surrounding the Eagle Pass region, which would make navigation virtually impossible for vessels carrying commercial cargo. The Cpt. Ciarametaro's visit to the area confirms the waters are extremely shallow.

2. **Natural Obstructions:** The river is prone to natural obstructions such as logs, trees, rocks, silting, sandbars, and debris, which pose significant hazards to navigation and would impede the passage of vessels carrying commercial cargo.
3. **Variable Flow Rates:** The flow rates of the Rio Grande River can vary significantly depending on factors such as drought, rainfall, and dam releases, leading to unpredictable water levels unsuitable for consistent commercial navigation.
4. **Elevation Changes:** The Rio Grande River traverses through diverse terrain, including steep gradients and narrow canyons, leading to rapid changes in elevation, width, and speed of current that are not conducive to navigational stability for vessels carrying commercial cargo.
5. **Existing Dams:** Several dams have been constructed along the Rio Grande River for flood control, irrigation, and hydroelectric power generation. These dams create barriers to navigation and regulate water flow, further complicating the feasibility of commercial traffic.
6. **Lack of Infrastructure:** There is limited or no infrastructure along most of the Rio Grande River to support commercial navigation, such as ports, terminals, and navigation aids, essential for safe and efficient transportation of goods.
7. **Specific uses:** Local transportation of A and 1 class vessels, which are not classified as commercial vessels and lack adequate size or cargo capacity to function as modern forms of commercial navigation.

Additionally, the Rio Grande River has areas of significant shoaling, making it difficult for vessels with a deep draft to navigate without running aground. The river's depth varies greatly, and in many areas, it is insufficient to support the draft of larger commercial vessels. The presence of numerous dams and weirs along the Rio Grande poses major barriers to navigation. These structures control water flow for irrigation and flood management but create impassable points for vessels without extensive lock systems, which are not present along the river. Fixed height bridges along the river restrict the vertical clearance available to vessels. Many commercial vessels have superstructures that would not fit under these bridges, preventing them from passing through certain sections of the river. Areas with some stretches of the Rio Grande have very low water levels or even dry up completely, especially during periods of drought. This makes continuous navigation impossible in these areas. Commercial cargo vessels typically have a draft ranging from

10 to 40 feet, depending on their size and load. The shallow sections of the Rio Grande are not deep enough to accommodate such drafts. The weight limits for commercial vessels vary widely, but they often carry tens of thousands of tons of cargo. The shallow and inconsistent depth of the river cannot support the weight of these heavily loaded vessels without significant risk of grounding.

In Cpt. Timmel's report, he recounted similar observations during his deposition from a site visit conducted while riding on U.S. Customs and Border Protection airboats, which traveled several miles downriver. He noted the presence of numerous rocks and rapids and expressed doubts about the feasibility of traversing or navigating the river at night or without local knowledge. Additionally, Cpt. Timmel highlighted the absence of charts or navigational aids to assist river navigation. These observations align with Cpt. Ciarametaro's opinion that the Rio Grande River is not a navigable body of water. Cpt. Timmel's assessment underscores the broader reality that the Rio Grande River does not meet the criteria of a navigable waterway conducive to commercial activities.

While Cpt. Timmel's report raises concerns about navigational capacity, closer examination reveals that marine barriers are just one aspect of a broader set of obstacles. Natural obstructions, shallow depths, variable flow rates, elevation changes, existing dams, and a lack of infrastructure contribute to the river's navigational challenges. Cpt. Timmel admitted during his deposition that vessels can freely traverse up and down the Rio Grande River past the buoys on the side closest to Mexico. Inland waterways that border another country, such as the Rio Grande, the St. Lawrence Seaway, and the Great Lakes, do not have specific delineation lines or imaginary boundaries indicating which side of the waterway a boat can use for navigation or traversal. These waterways are shared for all navigation and intended uses by both countries. Moreover, the

consensus among Texas' other expert reports underscore the multifaceted nature of the Rio Grande's navigability issues. From shallow waters to legal and regulatory challenges, the river presents an insurmountable obstacle to commercial navigation. Given its status as an international border, legal and regulatory considerations add another layer of complexity to the equation. Cpt. Ciarametaro agrees with the other Texas experts that the Rio Grande River falls short of the requirements necessary for commercial navigation in any capacity.

Lastly the Rio Grande, serving as a natural border between the USA and Mexico, faces significant security challenges, including cartel activity, smuggling, human trafficking, piracy and other illegal activities. The river's extensive and often remote stretches provide a conducive environment for criminal activities. Criminal organizations exploit the river's length and the sparse law enforcement presence to smuggle goods, drugs, and even people across the border. Human trafficking would be another severe concern to commercial navigation on the Rio Grande River. Smugglers guide groups of illegal migrants across the river, often charging exorbitant fees. These crossings are fraught with danger, not only due to the river's natural hazards but also because of the violent tactics employed by traffickers to maintain control and evade capture. These crossings could impede vessels attempting to navigate the river carrying commercial cargo, and the vessel's crew would be at risk to criminals seeking to commandeer their vessels, kidnap their crew, and/or steal their cargo.

Opinion #2

Interventions to enable future commercial vessel navigation of the Rio Grande River are infeasible due to the exorbitant costs, extensive time requirements, and engineering challenges that the flow and topography present to changing the river into a viable commercial thoroughfare.

The Rio Grande River presents formidable challenges that render it unsuitable for commercial vessel operations. The river's inconsistent depth and narrow channel width are at the forefront of these challenges, falling far below the minimum requirements to accommodate commercial traffic. With industry standards requiring minimum depth requirements of 9 feet and a channel width of 250 feet for two-way commercial navigation, the Rio Grande falls significantly short of these standards, posing insurmountable obstacles to the feasibility of large-scale maritime transportation or commercial usage. Commercial barges have a draft typically ranging from 9 to 12 feet, depending on their design and the load they carry. The draft is crucial as it determines the minimum water depth required for safe navigation. Regarding cargo capacity, a standard size commercial barge can carry approximately 1,500 tons of cargo on average. This capacity can vary based on the type of cargo and the specific design of the barge, but is obviously far beyond anything that could be moved by Class A and Class 1 vessels that currently operate in *some* segments of the Rio Grande River. *See e.g.* Barge Weight Capacity, Heartland Barge (accessed June 14, 2024), <https://tinyurl.com/2p9tm2z7>.

Moreover, addressing these deficiencies would necessitate a monumental investment of resources in both time and capital and significant international cooperation. The sheer scale of engineering required to deepen the riverbed and widen the channel to meet basic standards of commercial navigability is staggering. Such undertakings would demand extensive dredging operations, modification of natural river courses, elevation, and construction of extensive infrastructure—all of which come with exorbitant costs and protracted timelines.

These realities are well-documented as having already cost the United States and Mexico significant amounts of money, time, and other resources to manage changes in the river that affect the international boundary between the two countries.

Furthermore, even if the Rio Grande were to undergo such extensive modifications, the economic viability of commercial vessel operations remains dubious. The projected costs of transforming the Rio Grande into a navigable waterway suitable for maritime transportation of commercial goods would far outweigh any potential benefits. Any proposed project of this magnitude would undoubtedly undergo stringent cost-benefit analysis, as mandated by the U.S. Army Corps of Engineers, and is unlikely to pass muster given the astronomical costs and uncertain returns on investment.

Considering these realities, it is evident that the Rio Grande River, with its inherent limitations and prohibitive costs, remains impractical for future passage and is currently impassable for commercial vessel operations. Any notion of transforming this natural waterway into a viable maritime transportation route would be blocked by the formidable challenges of the river's topography, the immense costs involved, and the stringent economic criteria mandated by regulatory authorities and international treaties.

Opinion #3

The buoy barrier placed in the Eagle Pass region of the Rio Grande River helps prevent and deter the illegal crossings of persons, guns, drugs, and goods into Texas.

Buoy barriers enhance border security by providing a visible and tangible means of enforcement along the Rio Grande. According to a United States government website, physical and visible barriers are recognized mechanisms used to “define boundaries, delay or prevent access, restrict movement to a particular area, obscure visual observation into or from an area, and prevent technical penetration of an area.” Barriers, *Physical Security Toolbox*, U.S. Forest Service (accessed June 14, 2024), <https://tinyurl.com/3s7mprkf>. Furthermore, when selected and installed correctly, they can represent not only a physical impediment but also a psychological deterrent. Press

Release, *The Border Wall System is Deployed, Effective, and Disrupting Criminals and Smugglers*, Department of Homeland Security (Oct. 29, 2020), <https://tinyurl.com/53cf4z87>. Law enforcement agencies can leverage these barriers as part of a comprehensive border protection strategy, more effectively and efficiently channeling resources to monitor and patrol critical areas prone to human crossing activities. These are recognized needs in overall border security strategy. The strategic placement of these barriers in high-traffic zones also deters individuals from attempting such endeavors.

Furthermore, the placement of buoy barriers is a reasonable part of broader efforts to combat transnational smuggling and human trafficking. By fortifying border infrastructure along the Rio Grande River, these buoy barriers can contribute to the disruption of the operational capabilities of criminal networks, thereby enhancing overall border security and public safety.

It is the Cpt. Ciarametaro's opinion that the implementation of the buoy barriers is consistent with border security and Homeland Security missions and policies. Due to the Cpt. Ciarametaro's training and experience these practices are consistent with counter drug and migrant interdiction operations taught in academy training facilities operated by the Department of Homeland Security.

Adding buoy barriers in the Eagle Pass region of the Rio Grande River represents a recognized effective measure in deterring and preventing the illegal crossings of persons, guns, drugs, and goods into Texas. By serving as a physical obstacle and enhancing border security measures, these barriers play a crucial role in safeguarding national and state borders and protecting communities without impeding watercraft operating on the Rio Grande River. Adding more buoy barriers at strategic locations on the Rio Grande River would likely be beneficial in preventing and reducing the flow of human crossings, as well as the smuggling of illegal goods

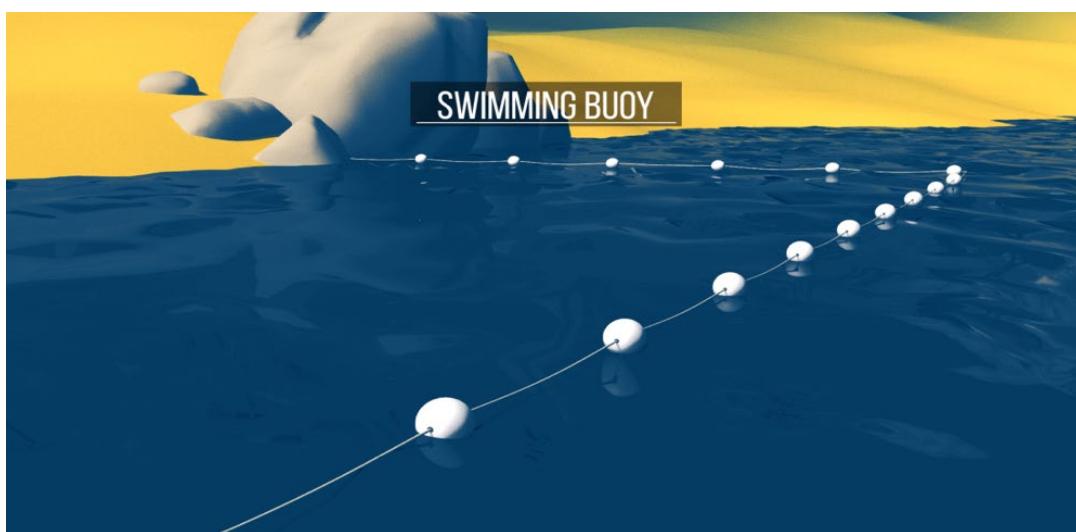
such as guns and drugs. These barriers could serve as effective deterrents, thereby enhancing border security, the security of Texas, and contributing to overall law enforcement efforts.

Opinion #4

The buoys are not floats, booms, or other structures.

Cpt. Timmel's expert report and deposition consistently refer to the buoys as "floats" and not buoys. However, this terminology is incorrect.

The barrier in Eagle Pass, Texas, is comprised of buoys rather than floats due to several defining characteristics and functions. Buoys are anchored devices used primarily for marking positions on the water and serving specific purposes such as navigation, mooring, or delineating boundaries. Unlike floats, which are typically movable objects without fixed positions, buoys are designed to remain stable and fixed in a specific location, often tethered to the seabed. This stability is crucial for the barrier's function in Eagle Pass. Moreover, the barrier is helpfully visible and thus serves the specific purpose of deterring illegal crossings and alerting mariners to their concrete moorings. Therefore, based on their anchored design, specific purpose, and practical application in marking boundaries, it is clear that the devices used in Eagle Pass are buoys and not floats.



Figures 19. Example of a swim buoy system. *Characteristics of a swimming buoy*, AceBoater.com (accessed June 14, 2024), <https://tinyurl.com/4kv6ebhv>.



Figures 20. Another example of a swim buoy system. *Swim Course Marker Buoy*, Malmsten (accessed June 14, 2024), <https://tinyurl.com/ye244dnk>.

This is consistent with the buoys, which are described as such by the company that installed them, Cochrane Global, thusly:

Designed and engineered exclusively by Cochrane Global, the patented Floating Barrier is comprised of multiple interconnected buoys which can be extended to any length and customized according to their application. While Spike Buoys are highly effective at repelling waterborne craft, Smooth Buoys are the ideal countermeasure against human intrusion—deterring people from attempting a crossing that would ordinarily prove to be perilous and, in many cases, fatal. ...Deterrence saves lives.

Marine Floating Barrier, Cochrane Global (accessed June 14, 2024), <https://tinyurl.com/yfv59r5f>.

Relatedly, a “boom” means “a chain cable or line of spars extended across a river or the mouth of a harbor to obstruct passage.” Webster’s New International Dictionary 254 (1930); *Lindsay & Phelps Co. v. Mullen*, 176 U.S. 126, 154 (1900) (“constructed” boom “extend[ed] across the main channel of the Mississippi river and into the territory of Wisconsin”); *United States v. Bellingham Bay Boom Co.*, 176 U.S. 211, 211 (1900) (“boom . . . constructed across the Nooksack river”); *Susquehanna Boom Co. v. West Branch Boom Co.*, 110 U.S. 57, 57-58 (1884) (similar).

Booms are often used in accidents, such as oil spills, as a means of containment.

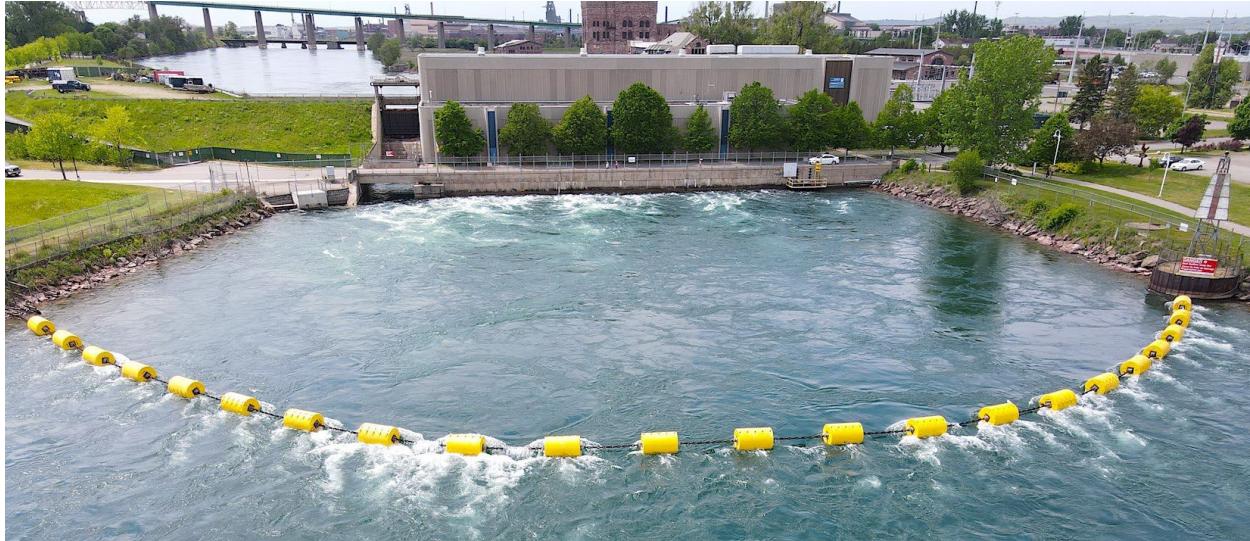


Figures 21. An example of a containment boom. *All About Oil Spill Containment Booms*, UltraTech Int'l (accessed June 14, 2024), <https://tinyurl.com/yc2r5m2n>.

The buoys in this case are distinguishable from booms, as defined above, because they do not obstruct passage along the entire Rio Grande River.



Figures 22. An example of a floating barrier obstructing the entire waterway. *OdinBoom, Floating Barriers*, Worthington Waterway Barriers (accessed June 14, 2024), <https://tinyurl.com/2rptc7ye>.



Figures 23. An example of a floating barrier obstructing the entire waterway. BoatBuster, *Floating Barriers*, Worthington Waterway Barriers (accessed June 14, 2024), <https://tinyurl.com/5n7jrjyd>.



Figures 24. An example of a floating boom barrier obstructing the entire waterway. TuffCat, *Marine Security Barriers*, OFM Engineering (accessed June 14, 2024), <https://tinyurl.com/4smzwhxd>.

The buoys do not obstruct passage along the Rio Grande River, therefore, based on the definition provided, the buoys are not booms.

Finally, the buoys are not other structures under the RHA. “Structures” means “any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other obstacle or obstruction.” 33 C.F.R. § 322.2(b); *United States v. Hall*, 63 F.472, 474 (1st Cir. 1894) (describing “structures” as “all obstructions of a permanent nature.”). Structures must affect the course, location, or condition of a waterway in such a manner as to impact on its navigable capacity. 33 C.F.R. § 322.3(a); 33 U.S.C. § 403. The buoys do not affect the course, location, or condition of the Rio Grande River in such a manner as to impact its navigable capacity, for all the reasons discussed elsewhere in this report; therefore, the buoys are not other structures.

Opinion #5

The buoy barriers placed on the Rio Grande River operate as designed for their intended purpose and do not obstruct navigation or cause a hazard to navigation or passage of vessels, including Class A or Class 1 vessels along the river.

The design and placement of the buoy barriers appear to address specific concerns without obstructing the ability of Class A and Class 1 vessels to traverse up and down the river. The buoys are not permanently moored. By strategically situating these barriers on shoal waters along the eastern bank of the river the barriers enhance border security without unnecessarily impeding the movement of Class A or Class 1 vessels, these buoy barriers in no way diminish the ability for vessels to traverse the Rio Grande River.

Captain Timmel's report highlights how marine barriers could impede the navigable capacity of the river, citing USCG Navigation rules of the road, particularly Rule 6 on Safe Speed and Rule 7 on Risk of Collision. However, neither rule directly pertains to the buoy barriers at the Eagle Pass portion of the Rio Grande River. Over 75% of the river remains open and unobstructed, with the deepest portions of the river encompassed within this 75 percent that lacks buoy barriers. Even if these barriers were removed, vessels would still be unable to traverse the area safely due to shoaling and extremely shallow water depths.

It is crucial to emphasize that none of the vessels detailed in this report, nor those mentioned in the other expert analyses provided by the Plaintiff, could navigate the entire 335-mile stretch of river spanning from mile marker 275 to 610. As a result, an attempt to classify this portion of the river as commercially navigable is simply wrong. Recreational, non-commercial navigation in the area is unaffected by the presence of the buoys.

5. Conclusions

The buoys barriers, at their current location, do not impede typical navigation of this stretch of the Rio Grande River, successfully ensuring that the region's limited recreational maritime and law enforcement activities remain unobstructed while enhancing border security. The buoys operate as intended, allowing Class A and Class 1 vessels to pass without obstruction. This demonstrates their practical design and integration into the river, ensuring border security without interrupting traversing vessels. Additional barriers like the ones at Eagle Pass would continue to assist in the prevention and deterrence of human crossings.



Thomas P. Ciarametaro - Consultant

Date: 12JUN24

Five Fathoms Consulting LLC

Attachment 1 – Current Resume and Past Testimony, Thomas P. Ciarametaro Jr, Five Fathoms Consulting LLC.

The Cpt. Ciarametaro has not been deposed or testified in any cases in the last four years.

The Cpt. Ciarametaro of this opinion has not authored any publications in the past 10 years.

THOMAS P CIARAMETARO JR.

87 Dennison St.
Gloucester, MA 01930
757.675.2240
tj@fivefathomsconsulting.com

SUMMARY

My name is Thomas P. Ciarametaro Jr. I am an 11-year USCG active duty veteran and hold a 100 G.T Masters U.S. Merchant Marine license. In addition to my military service, I hold various certifications, including Deck Watch Officer, USCG navigation rules of the road, Certified Massachusetts Harbormaster, and I am a graduate of the Federal Law Enforcement Academy in Charleston, South Carolina (Maritime Law Enforcement Academy).

Most recently, I served as the Harbormaster/Port Director for the City of Gloucester, MA, where I collaborated closely with several port partners, including the U.S. Army Corps of Engineers, Massachusetts Environmental Police, State and Local Police, United States Coast Guard, Massachusetts Department of Environmental Protection, and various state and federal elected representatives.

As a department head, my responsibilities included managing twenty-five employees, a fleet of six vessels consisting of two law enforcement patrol crafts, overseeing 6 million dollars in waterfront assets and infrastructure, and maintaining oversight of over 65 coastal miles within my area of responsibility.

Additionally, I continue to serve in the USCG Reserves, where I hold roles as a Federal Officer, Coxswain, and Search and Rescue operator. In the fall of 2020, I was promoted to the Senior Reserve Officer position at USCG Station Gloucester, assuming command of 22 active reservists, bringing my total military service to 17 years.

Furthermore, I am the owner of Five Fathoms Consulting, where I work as an expert witness for maritime navigation and risk cases, as well as consulting for maritime stakeholders and companies.

SKILLS

- Small-Boat Operations
- Search and Rescue and Drug Process Implementation
- Weapons Training and Firearms Instructor (NSI)
- Maritime Incident Investigation
- Counterterrorism Data Management
- Counterterrorism Strategies
- Expert Witness Report Writing
- Disaster Preparedness
- Conducting Risk Assessments
- Law Enforcement
- Port Security
- Project Management
- Logistics and Coordination
- Marketing strategies
- Navigation
- Personnel Management & Mentoring
- Training Oversight
- Grant Writing
- Operations, Budgeting and Finance
- Critical Thinking and Troubleshooting
- Strong Verbal Communication
- First Aid Certified

EXPERIENCE

USCG STATION GLOUCESTER Gloucester, MA

Senior Enlisted Advisor **10/2020 to Current**

- Analyze the current reserve training practices and identify methods that could boost improvement and efficiency.
- Review the practices conducted at training facilities to ensure that a high level of standard is met on a daily basis.
- Improve emergency preparedness procedures, commanding oversight and maintenance of tactical plans, equipment, and weapons.
- Demonstrate leadership by making improvements to work processes and helping to train others.
- Manage a full reserve unit with 22 personnel.
- Direct liaison with other state and federal port partners.

FIVE FATHOMS CONSULTING LLC Gloucester, MA

Small Business Owner Operator **11/2016 to Current**

- Review documents such as investigation reports, depositions, witness statements, and police reports.
- Review and investigate maritime-related incidents.
- Comprise expert witness reports pertaining to maritime navigation incidents involving: collisions, personal injury, boating under the influence, and other marine accidents.
- Setup maritime logistics and coordination for business or research projects.
- Assess, optimize and elevate operations to target current and expected demands.
- Support community outreach initiatives by partnering with local organizations.

CITY OF GLOUCESTER Gloucester, MA

Harbormaster **07/2016 to 3/2024**

- Achieved 35 Percent growth in revenue within the first year.
- Implemented marketing strategies, which resulted in 56% growth of customer base.
- Obtained documents, clearances, certificates, and approvals from local, state, and federal agencies.
- Manage a department of 21 personnel.
- Conduct Maritime enforcement and enforce all MGL Ch: 90(B) laws.
- Write and manage state and federal grants and monies
- Create and manage an annual budget of \$625,000 dollars.
- Work closely with team members to deliver project requirements, develop solutions and meet deadlines.
- Demonstrate superior leadership skills by making improvements to work processes and helping to train others.
- Manage and supervise over 10 million dollars in projects from 2016- 2020. Including an extensive city-owned building renovation and dredge project of the Annisquam River.

USCG RESERVES STATION BOSTON
Boston, MA

Chief Officer

07/2016 to 09/2020

- Researched and updated all required materials needed for station Boston's reserve readiness.
- Conduct Maritime law enforcement.
- Conduct Search and Rescue operations.
- Conduct unit training as the training officer.
- Supervised and managed 13 staff members, boosting personnel with strong skills and leadership potential.

BOATSWAINS MATE, UNITED STATES COAST GUARD STATION BOSTON
Boston, MA

06/2013 to 07/2016

- Conducted maritime security for seven Presidential events.
- Conducted port and waterway security for 60 Liquid Natural Gas (LNG) ships entering the Port of Boston.
- Conducted 140 high-value asset boarding's ensuring the safety of Boston Harbor.
- Maintained 4 USCG small boat assets.
- Managed 26 personnel in the deck department, Remington 870 police shotgun.
- Supervised the creation and validation of anti-terrorism plans on all ships.
- Served as custodian of classified documents.
- Expert in tactical and technical guidance.
- Surveyed and analyzed terrain to determine optimum equipment placement and use.
- Tracked personnel and supplies within the unit.
- Planned and briefed personnel on missions.

USCGC GRAND ISLE
Gloucester, MA

Boatswains Mate, Petty Officer

06/2011 to 06/2013

- Conducted maritime security for 4 Presidential security events.
- Conducted 178 living marine resources at sea boarding's.
- Conducted 12 security zones for high security events including the Boston Marathon bombings.
- Operated and maintained communications equipment.
- Expert in tactical and technical guidance.
- Supervised teams in support of security and installation law and order operations.
- Managed deck operations, Lead Federal Officer assigned to the unit.
- Conducted maritime security and advanced interdiction operations.
- Chief Navigator, maritime navigation rules of the road expert.

USCG MARITIME SECURITY RESPONSE TEAM
Chesapeake, VA

Boatswains Mate, Petty Officer **09/2008 to 05/2011**

- Operated and maintained communications equipment.
- Expert in tactical and technical guidance.
- Supervised teams in support of security and installation law and order operations.
- Conducted maritime security and advanced interdiction operations on a global scale.
- Maintained all qualifications and currencies for over 30 personnel assigned to my team.
- Oversaw readiness and maintenance for 7 vessels.
- Rapidly deployed at a moment's notice.
- Expert in anti-piracy and counterterrorism procedures.
- Maintained 100% accountability of all assigned equipment worth more than \$4.5 million dollars.

Tactical Boat Crew Member Boarding Team Member **04/2007 to 08/2008**

- Special Missions Training Center Officer-of-the-Day, Certified as Officer-of-the-Day.
- Represented command leadership, managing the administrative, technical, and operational aspects of a 75-person duty section.
- Provided leadership to junior members assigned to the deck force operations.
- Assisted in the management of the Marine Information for Safety and Law Enforcement database system and ensured the accurate documentation of all law enforcement and SAR missions.
- Released message traffic through Coast Guard General Message.
- Certified as Tactical Crew Member.
- Operated and maintained qualifications on numerous US Coast Guard vessels.
- Documented and processed classified materials.

EDUCATION AND TRAINING

BACHELOR OF SCIENCE: HOMELAND SECURITY/ CRIMINAL JUSTICE
Endicott College, Beverly, MA

ASSOCIATE OF APPLIED SCIENCE: FIRE SCIENCE
North Shore Community College, Danvers, MA

CASE INVOLVEMENT

- Commonwealth v. Urbelis, (SSC 2016) USCG (Federal Officer)
- F/V Princess Laura Anthony & Enzo Inc.(USDC 2011) USCG (Federal Officer)
- Sally Olsen and Mark Olsen v. Peter Mullen and Irish Venture Inc. F/V Osprey (Expert Witness)
- Matthew Holland v. Garrett Lee Saunders New York Supreme Court (ID# 20163109) (Expert Witness)
- Richard Lane, Richard Palmer, and Lea Sutherland-Doane, As Administrator of the Estate of David R. Sutherland V. Unites States, and Phillip Powell and the F/V Foxy Lady. (Expert Witness)
- Brian Sforza et al V. Interstate Navigation Co. et al (Expert Witness)

- Kelly Wilhelm v. Chicago Lakefront Cruises Inc. (Expert Witness)
- Sean Ryan v. Schuyler Line Navigation Company LLC (Expert Witness)
- Dequian Vincent v. Dupre Brothers Construction Company Inc. (Expert Witness)

CERTIFICATIONS

- Maritime Law Enforcement Academy Graduate
- MLEA Counter Drug and Migrant Interdiction C -School
- NSI Line Officer Fire Arms Instructor.
- Radiation Detection Level II Operator
- Leadership and Management School
- Chief Petty Officers Academy Graduate (Senior Military Leadership Academy)
- ICS 300/700/800
- Search and Rescue Fundamentals Certified.
- CPR First Aid
- U.S.C.G 100 GT Masters Licensed Captain.
- Massachusetts State Certified Harbormaster.

Attachment 2 – Rate Sheet, Five Fathoms Consulting Via Expert Connect Legal.

The Office of the Attorney General of Texas is being billed at \$430 per hour for my consultation services by the expert witness search and placement firm, ExpertConnect Litigation Support, LLC, who placed me on this matter and is responsible for all billing for my consultation services.

The Office of the Attorney General of Texas is being billed at \$450 per hour for deposition and testimony services by the expert witness search and placement firm, ExpertConnect Litigation Support, LLC, who placed me on this matter and is responsible for all billing for my deposition and testimony services.

The Office of the Attorney General of Texas is being billed at \$300 per hour for travel time by the expert witness search and placement firm, ExpertConnect Litigation Support, LLC, who placed me on this matter and is responsible for all billing for my travel.

Attachment 3 - Complete list of documents relied on by Cpt. Ciarametaro

In addition to the materials cited, the following materials were relied on in the research and preparation of this report:

- United States Coast Guard (www.uscg.mil).
- https://ftp.txdot.gov/pub/txdot-info/tpp/ports_waterways/equipment_personnel.pdf.
- <https://www.ams.usda.gov/sites/default/files/media/RTIReportChapter12.pdf>.
- Code of Federal Regulations (govinfo.gov).
- Marine Traffic (www.marinetraffic.com).
- The pleadings, declarations, orders, and appellate filings in the case.
- The documents produced with the USA expert reports.
- The USA's expert reports and deposition transcripts.
- The USA's discovery responses
- The other Texas expert reports.
- Rio Grande River Video 1, <https://txdps.earthscape.com/v/vd9sqlux275d0tad>
- Rio Grande River Video 2, <https://txdps.earthscape.com/v/j04jbpmrn3g75kir>
- Rio Grande River Video 3, <https://txdps.earthscape.com/v/u95gpalt8n885x05>